of muscular dystrophy with myotonia. The dystrophy came on before the myotonia. They were perhaps examples of one of the forms of progressive dystrophy of the Charcot-Marie type upon which the myotonia had been implanted.

Dr. B. Onuf also agreed with Dr. Dana that the cases probably represented a myotonia implanted on a primary muscular dystrophy. The flaccidity of the muscles in one of the cases shown was extremely marked. In the other case the facial expression was so typically mask-like that it presented a very striking feature, and rather spoke against its belonging to the Charcot-Marie type.

Dr. Dana, in reply to Dr. Onuf, said that Gowers had reported one case of progressive dystrophy of the Charcot-Marie type in which the mask-like expression of the face was present.

Dr. Hunt, in closing, said that those who had written most extensively on this subject had tried to determine if this represented a distinct clinical type of atrophy, and whether it was a spinal or myopathic type, and the consensus of opinion was that it could not be brought under one of the well-known groups of atrophies. The atrophies in the cases he had shown seemed to be confined chiefly to the arms and forearms, with preservation of the muscles of the hands.

RESEARCHES ON THE EPILEPTIC VOICE.

By L. Pierce Clark, M.D., and E. W. Scripture, M.D.

Dr. Clark stated that for several years he had held that there was a characteristic voice in epilepsy which, if accurately analyzed, would possibly be an aid in the differential diagnosis, and with the help of Dr. Scripture's methods of voice study, which had been explained and illustrated at the April, 1907, meeting of the Society, he was now able to give a demonstration and analysis of the epileptic voice type. It was unnecessary to say that there was no past literature to refer to in such studies, as both the problem and results were entirely novel. After explaining and illustrating in detail the method of obtaining these records, Dr. Clark showed that in the voice curves from epileptics there was a peculiarity which struck the eye at once. Instead of the continual rise and fall in melody of the normal voice, vowels and phrases ran along on even tones. The speech of an epileptic was, in fact, "plateau speech"; his melody proceeded by even tones, There was also a tendency to monotony, and the successive sounds did not vary much from each other as normal ones did. This defect of speech of the epileptic could be easily removed by training, but relapses occurred quickly. The degree of permanency of the removal was still to be proven. The speaker said he had seen the defect remain for several years after the epileptic attacks had ceased. He had no adequate explanation to offer for this voice defect in the epileptic. There was no parallel; no similar defect in any patient suffering from any other motor disorder of the nervous system, insanity or imbecility. Two of the record cases he had shown were entirely free from the bromides. They had universally found this epileptic type of voice in all well-established cases of epilepsy of whatever type. As a tentative explanation, they offered the theory that the voice was due to the chronic exhaustion of the nerve centers peculiar to epilepsy. The diagnostic value of the voice sign was obvious.

Dr. Charles E. Atwood said he had had the opportunity of following a good deal of the work of Drs. Clark and Scripture in connection with the epileptic voice, and he could corroborate what had been said regarding its peculiarities. The character of the voice in epilepsy was so uniform that the diagnosis of the disease could frequently be made on that basis alone.

Dr. B. Sachs asked whether these voice peculiarities described by Dr. Clark were observed in recent cases of epilepsy or only in the chronic or very old cases. Also, whether the voice was confined to those cases that had been more or less thoroughly bromilized. The monotony of the epileptic voice must surely in the end be due to insufficient vibration of the vocal cords, or perhaps a slowness of vibration, and that we would expect to find in patients who were under the influence of the bromides.

Dr. E. W. Scripture said that while it was rather early to speak of the voice changes in paralysis agitans, they were distinctly different from those observed in epilepsy. In both affections the speech was monotonous in character, but otherwise they were different. The spaker thought it was quite possible to walk through the wards of the institution on Ward's Island and distinguish the various cases of epilepsy by the voice alone. The voice of imbeciles was also quite distinctive.

Dr. Edward D. Fisher said that in the three cases of epilepsy shown by Dr. Clark, the patients were of a low type of mentality. The speaker said that in epileptics of a higher type, those who were able to be about and conduct their business affairs in a satisfactory manner, he had never noticed any changes in the voice, and he was inclined to believe that such changes were an evidence of mental deterioration.

THE GALVANOMETER IN PSYCHOLOGY.

By Frederick Peterson, M.D.

The author said the discovery by Féré in 1888 and Tarchanoff in 1890, and the rediscovery by an electrical engineer in Zurich very recently of the influence of emotions on the galvanometer was at present arousing some attention here and abroad among those interested in normal and morbid psychology. The bibliography of the subject and the results of the investigations last winter by Jung and Peterson were published in the July (1907) number of *Brain*. The speaker showed an instrument which thus far had given the most satisfaction in these researches, and he hoped to demonstrate its utility as a measurer of the emotions so far as that was possible with a test person in the same room with a large number of people. Anticipation, apprehension and embarrassment might interfere with the experiment. The instrument was the mirror galvanometer of Duprez-d'Arsonval, made by Carpentier of Paris. (Model A, suspension thread 0.08 mm., duration of simple oscillation 1.69 second; resistance 6.2 ohms.) By means of an arc light the reflection from the mirror was thrown on a screen 12 to 14 feet away, so that every one in the room might note the deviations of the mirror. This was only for purposes of demonstration. For scientific use the light reflected upon a millimeter scale about a meter from the galvanometer, and a sliding index connected with a pen made a permanent record on a kymograph. An effort was being made to secure an automatic recorder such as was used in the cable offices, and if that could be perfected it would prove a most valuable adjunct to the apparatus. The test person was put in the circuit with the galvanometer and one dry cell, and a shunt was also employed to